



Road Asset Management for Rural Roads

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What we'll be discussing today....

- Some AM Principles & examples from international cases
 - Costa Rica
 - Uganda
 - England Councils (various)
 - Australia (Qld State)
- General discussions about implementing an 'Asset Management' approach for your network









Some areas we'll cover....

- Importance of establishing AM Frameworks & Governance to guide your practices
- Strategic and tactical asset management planning
- Data, data and more data
- Turning data into decisions into work on the ground





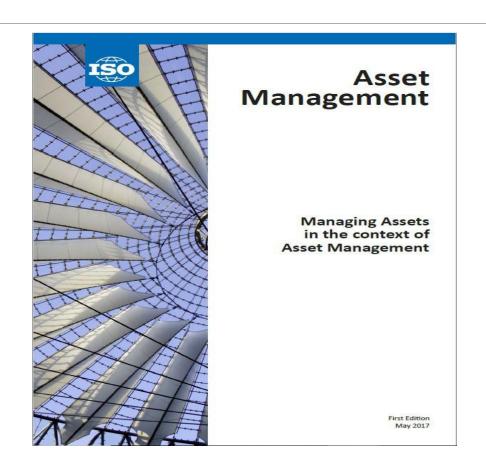




ASSET MANAGEMENT DEFINITION

ISO55000 Definition:

'coordinated activity of an organization to realize value from assets'









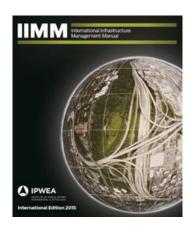
ASSET MANAGEMENT DEFINITION





• Asset Management Council:

"The **life cycle management** of **Physical Assets** to achieve the stated **outputs** of the **enterprise**."



The International Infrastructure Management Manual (IIMM):
 "The combination of management, financial, economic,
 engineering and other practices applied to physical assets with
 the objective of providing the required level of service in the
 most cost-effective manner."





CONTEXT OF THE ORGANIZATION



Structure of ISO 55001

NON-CONFORMITY &

CORRECTIVE ACTION

CONTINUAL IMPROVEMENT

1. MONITORING, MEASUREMENT,

ANALYSIS AND EVALUATION

2. INTERNAL AUDIT

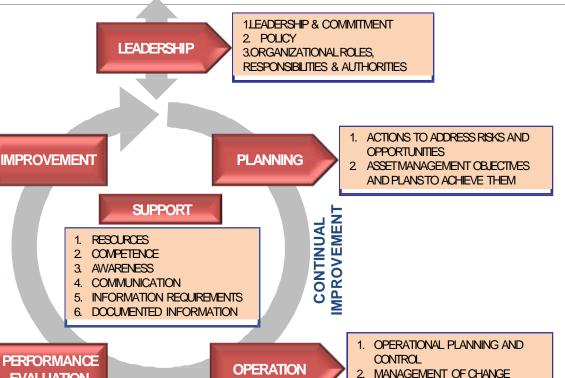
3. MANAGEMENT REVIEW

CONTINUAL IMPROVEMENT

EVALUATION

2 PREVENTIME ACTION

- 1. UNDERSTANDING THE ORGANIZATION AND ITS CONTEXT
- 2. UNDERSTANDING THE NEEDS AND EXPECTATIONS OF STAKEHOLDERS
- 3. DETERMINING THE SCOPE OF THE ASSET MANAGEMENT SYSTEM
- 4. ESTABLISHING THE ASSET MANAGEMENT SYSTEM



3. OUTSOURCING OF AM ACTIVITIES









Asset Management Framework

- The Framework includes all asset management activities normally undertaken by an authority and is flexible to accommodate the requirements of individual authorities. Senior decision makers within authorities should endorse the approach, which should be clearly documented and accessible to relevant stakeholders
- It comprises the activities and processes that are necessary to develop, document, implement and continually improve Road Asset Management. These activities and the approach to their delivery should be clearly documented and accessible to relevant stakeholders.









An approach to effective implementation...

- 1. Understand your Organisational Context the context within which you have to operate
- 2. Carry out some form of maturity assessment to:
 - Identify any major gaps in your existing AM practice/systems
 - Provides you with priorities for implementation
- 3. Engage with key stakeholders & Senior Management for commitment to embedding a strong Asset Management culture









Implementation continued...

- 4. Develop an Asset Management Policy & Strategy, including measurable objectives set the 'long-term picture'
- 5. Establish Existing levels of asset information, systems and organizational capability/competencies
- Develop Asset / Lifecycle Management Plans to address requirements for asset data and planning to develop Forward Works Programmes
- 7. Adopt Whole-of-Life approach for your main asset types









Implementation continued...

- 8. Create plans to ensure stakeholders are engaged and informed, and senior commitment is maintained
- Resource Management planning includes organizational review, capability/capacity strengthening (incl training), procurement/contract delivery models
- 10. Measurable progress is key against Plans and actions outlined





ORGANISATIONAL CONTEXT

Political Commitment

Kampala CCA Elected Members Eng & Tech Services Directorate

KCCA Government Strategy & Guidance

KCCA Strategic Plan 2020-2025

Stakeholder Expectations

Customer Feedback

ENABLERS

Leadership & People

- •Governance
- •Skills &

Competencies

- •Roles &
- Responsibilities
- Training

<u>Customer</u> <u>Communication</u>

- •Stakeholder Feedback
- •Information & Publishing

Resourcing Management

- •Service Level Agreements
- •Procurements & Contracts

Strategic Asset Management Plan

- Strategic Objectives for KCCA's Road Network
- Service Levels for Engineering & Technical Services

Asset Data & Information Management

- Road Hierarchy, Inventory + Condition
- Road Inspections & Surveys
- iRoads asset data storage and analysis

Asset Class Lifecycle Plans

- Deterioration Modelling & Analysis
 - Funding & Budget Scenarios

Works Programme Development

- Scheme Prioritisation
- 3-5 year programme

OPERATIONS & WORKS DELIVERY

- Works Management
- Routine & Cyclic Maintenance Programme
- Delivery of Projects Capital Programme
- Adverse Weather/Flood Management

PERFORMANCE MANAGEMENT

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- Performance Management Framework (KPIs, etc)
- Non-conformance/Corrective Actions
- Continuous Improvement

ENABLERS

Risk Management

- •Inspections &
- Analysis
- •Risk ID and Mitigation
- •Performance Evaluation

<u>Financial</u>

- Management
 •Budget Control
- Asset Valuation
- •Investment Strategies

AM Systems

- •Information Systems
- •Processes &
- Procedures
- •Audit & Compliance



Transport Scotland Asset Management Framework

Context

Scottish Government

- Strategic Objectives · Wealthier and Fairer
- Smarter
- Healthier
- Safer and Stronger Greener

Transport Scotland **Delivery Priorities**

Transport Scotland

- Transport Scotland Corporate Plan 2012-15 Annual Business Plan
 - reliability of a resilient Trunk Road Network

Stakeholder

Expectations

The availability and

Legal Constraints

- Acts of Parliament Scottish Government
- Legislation Funding Constraints

Available levels of funding



- Our published commitment to asset management
- · How we make the link between The Scottish Governments strategic objectives and our **Delivery Priorities**

Strategy

- · How we will implement our policy
- Our asset management framework
- Our strategy for each asset type
- · Our asset management hierarchy and priorities

Measuring Performance

- Our Performance Management Framework
- Asset Management Objectives
- Service Delivery Standards
- Performance measures and Targets

Lifecycle Planning

· Our lifecycle plans for individual asset groups

Programmed Maintenance

- Our scheme identification & prioritisation processes
- · Our three-year forward works programmes for asset groups
- · One-year delivery programme for asset groups
- Minor Schemes

Service Delivery Objectives **Contract Delivery Objectives**

- Reliable Journey Times
 - Continuous Improvement



- Our Structure
- Embedding an Asset Management Culture

Asset Management Steering Group

Risk Management & Network Resilience

- Our Corporate Risk Management Strategy
- Planning for Responding to Network Disruptions
- Management of Climate Change Risk
- Flood Risk Management · Managing the impact of landslides

Asset Management Systems & Data

- Our Asset Data
- Our Core Asset Management Systems
- Integrated Road Information System System (IRIS)
- Roads Asset Valuation System (RAVS)
- · Scottish Roads Traffic Database (SRTDb)
- · Customer Care Database
- Corporate GIS
- Traffic Scotland Services (ITS: Intelligent Transport System)
- Lighting Central Management System (L-CMS)
- · Building Information Modelling (BIM)

Performance Monitoring & Continuous Improvement

- Asset Management Training
- Assessing Asset Management Maturity (Gap Analysis)
- National Road Maintenance Review
- Performance Monitoring
- Operating Company Performance
- Road User Satisfaction Measures
- · Business Performance Measures
- Continuous Improvement
- · Asset Management Improvement Programme

Delivery Alignment with Maintenance Contracts

Sustainable Delivery

- Value for Money
- Flexibility







Transport Scotland Asset Management Framework

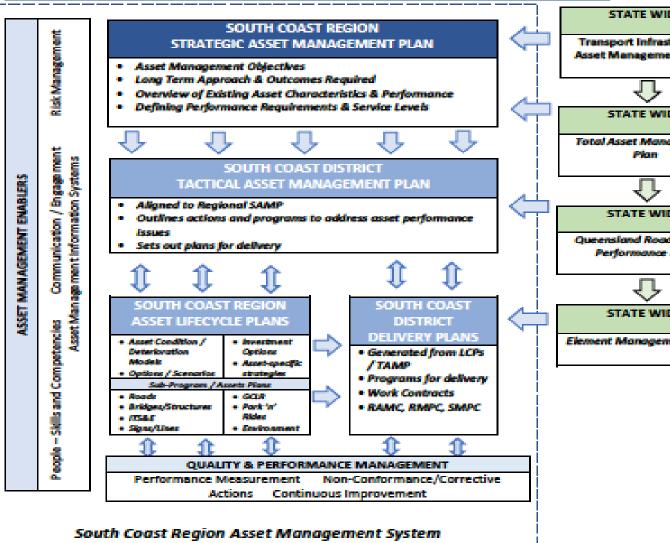








Qld Dept of Main Roads South Coast Region Asset Management Framework



NETWORK

PERFORMANCE REPORTS

Asset Management

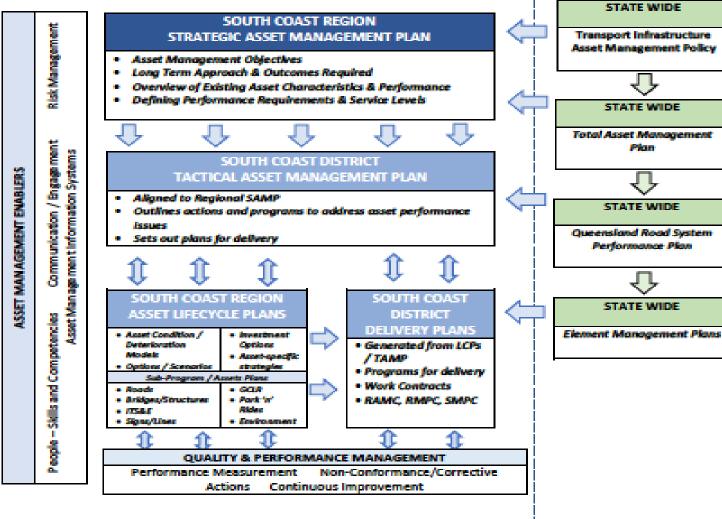
ISO55000 Series/PASS5:2008

SEO REGIONAL TRANSPORT PLAN

NATIONAL / STATE HIGHWAYS

LEGISLATION





STATE INFRASTRUCTURE

MPE&O INVESTMENT

PROGRAM





What that means in actions:



Strategy & Planning:

- Setting long term objectives and Service Levels for our Assets
- Creating AM Policy
- Developing Asset Plans and Work Plans
- 3-5 Year Programmes
- Lifecycle Planning

Operational Delivery

- Reactive & Planned Maintenance
- Capital Projects & Renewals
- Contracts to deliver the work



Performance & Improvement:

- Setting and measuring performance of road network – refer KPIs
- Non-conformance, improvement actions, action plans etc

Enablers

- Building the supporting processes and capabilities to better manage their network:
 - Training
 - Risk Mgt
 - Financial Mgt
 - Systems and Processes







What is Asset Management Planning?

- The key function of Asset Management Plan/s are to achieve the successful delivery of the Asset Management Strategy and Objectives
- Asset Management Plans describes and documents 'HOW' the organization/department/team will deliver their works

The Plans should address the various tasks that need to be implemented









Typical Contents of Asset Management Plans

- 1. Executive Summary
- Background, Context & Introduction 5. Future Requirements
- 3. Alignment to Policy, Strategy & Objectives
- Asset Data & Information
 - Scope
 - Inventory
 - Condition/Age/Profile/Characteristics

- - **Asset Performance**
 - Demand / Growth / Change
 - **Environment/Context**
 - National/Regional/Local Influence
 - Risks









Typical Contents of Asset Management Plans

- 6. Lifecycle Planning Process & Outputs
 - Data analysis and reporting
 - Deterioration modelling
 - Risks & Opportunities
 - Costs & Value
- 7. Investment Strategies and Options
 - Funding sources
 - Timeframe/Duration
 - Rol / CBA outputs

- 8. Programme Development
 - Capital/Operations
 - 3-5 year ideally
- 9. Improvement Actions









OBJECTIVES OF ASSET LIFECYCLE PLANNING

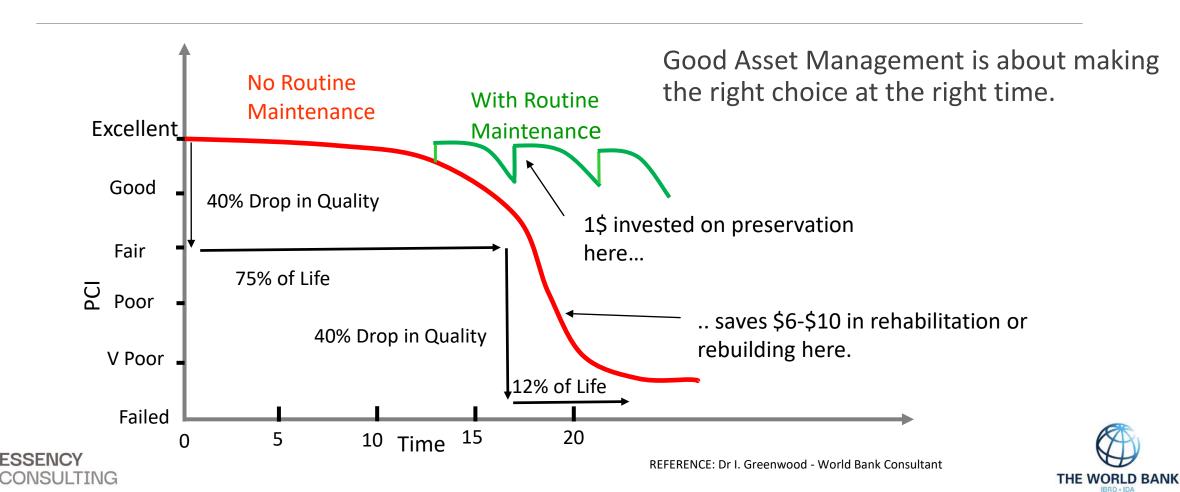
- Identify long term investment for highway infrastructure assets and develop an appropriate *maintenance strategy*.
- Predict future *performance* of highway infrastructure assets for different levels of investment and different maintenance strategies.
- Determine the *level of investment* required to achieve the required performance.
- Determine the performance that will be achieved for *available funding* and/or future investment.
- Support decision making, the case for investing in maintenance activities and demonstrate the *impact of different funding scenarios*.
- Minimising costs over the lifecycle while maintaining the required performance.







Managing the Life Cycle







Advantages of Road Asset Management System

- Contains and maintains all relevant road asset data:
 - Road inventory
 - Location (ideally mapped to GIS interface)
 - Asset Condition (based on standard inspection monitoring)
- Allows analysis of asset data for deterioration
- Enables prediction of future asset performance allows for more targeted interventions and maintenance treatments
- Maintains an up-to-date record of road assets (if populated)
- Provides visibility to all levels within organisation

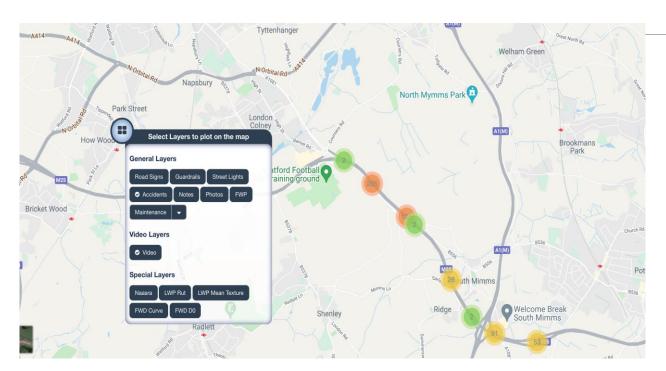


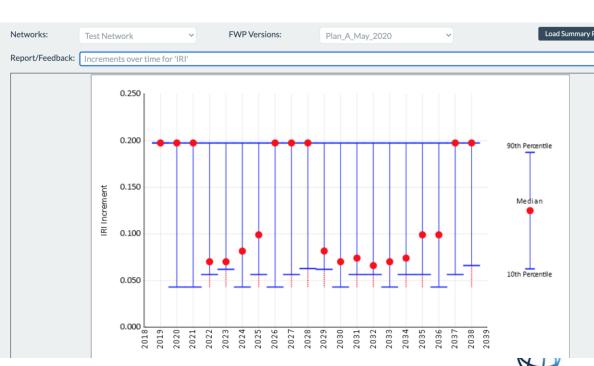






Use of Road Asset Information to make decisions







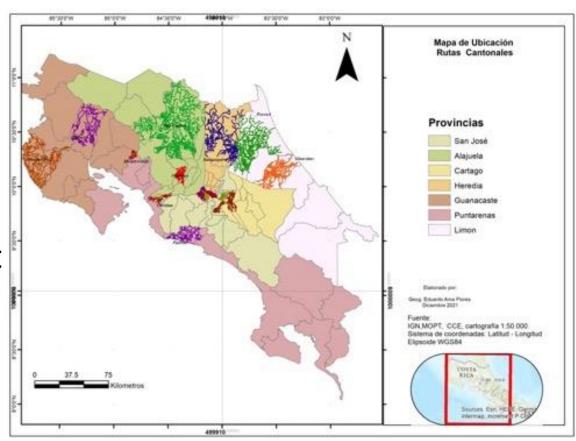




Costa Rica SAGA System – Red Vial Cantonal (and Nacional)

To Include:

- Road Inventory & Condition
- Road performance forecasting / deterioration modelling
- Forward Works Programme development
- Bridge Condition Reporting
- Road Furniture & Non-road assets



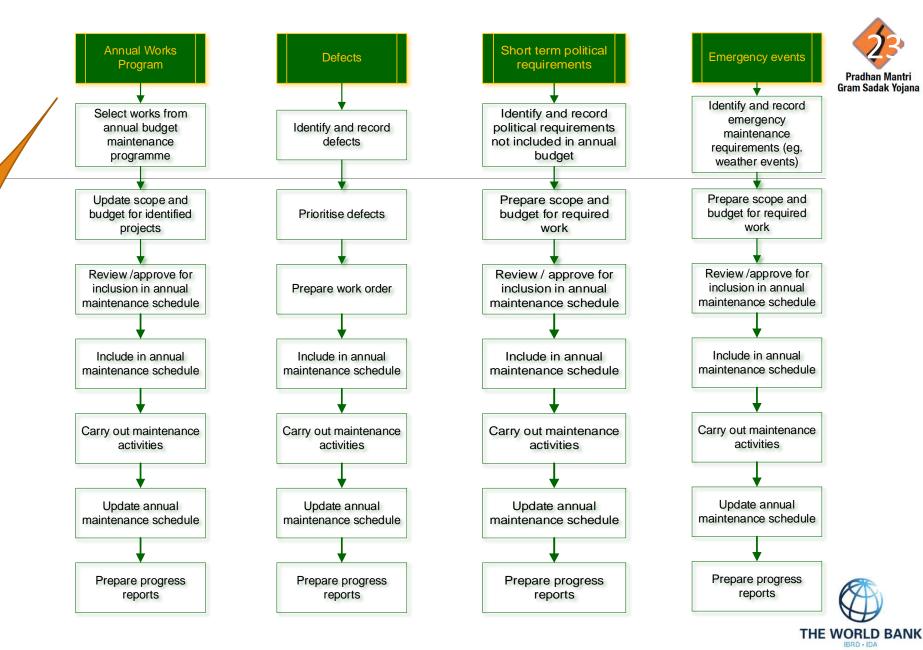




Maintenance Management Process

Road Asset
Management
Information
System









Some key learnings...

Determining and implementing your organization's Asset Management System - speed is important, progress is vital

- Effective Use of Asset Data & Information
 - Collection What, How often, How, When? (Make it Fit for Purpose!!)
 - Analysis outputs and skills to undertake
 - Decision-making Outcomes, performance
- AM Systems are important but so is AM Processes
- Legislation & Policy to support Asset Management is vital









Some key learnings...

- Link your AM Plans to your organization's objectives demonstrate alignment
- Develop relevant Plans for implementation
- Measure performance not just on <u>Asset</u> performance but also <u>Asset Management</u> performance
- Communication & Engagement to demonstrate:
 - Asset Needs ⇔ Funding / Budgets
 - Solutions & Options









QUESTIONS??

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